

## RESPONSE TO FINAL OFFICE ACTION

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**REMARKS**

This is intended as a full and complete response to the Final Office Action dated October 11, 2007, having a shortened statutory period for response set to expire on January 11, 2008. Please reconsider the claims pending in the application for reasons discussed below.

**CLAIM REJECTIONS****35 U.S.C. §103 Claims 1, 3-4, 6-7, 17-18, 20 and 23-24**

Claims 1, 3-4, 6-7, 17-18, 20 and 23-24 stand rejected under 35 U.S.C. §103 as being unpatentable over *Toprac* (U.S. Patent No. 6,379,980) in view of *Payne* (U.S. Patent No. 5,329,381), *Knoot* (U.S. Patent No. 6,130,415) and *Yonezawa et al* (U.S. Publ. No. 2003/0222231) or *Shoham et al* (U.S. Publ. No. 2004/0028267) or *Egermeier et al* (U.S. Publ. No. 2002/0006677) as evidenced by *Wilby* (U.S. Publ. No. 2003/0141572). The Applicants disagree.

Independent claims 1 and 18 recite elements not taught or suggested by the combination of *Toprac*, *Payne*, *Knoot*, *Yonezawa* or *Shoham* or *Egermeier*, as evidenced by *Wilby*. *Toprac* teaches measuring a thickness of a process layer disposed on a substrate before an etching process. A removal rate may be determined based on the measured thickness of the process layer and an endpoint time. The pre-measured thickness of the process layer is utilized to calculate the removal rate after the etching process is completed. However, *Toprac* does not teach or suggest analyzing a pre-etch measurement information to determine that a patterning is of a sufficient quality to allow for etching of a substrate. *Toprac* does not teach or suggest using a pre-etch measurement information in combination with etch process monitoring to monitor an etch process endpoint or a trim process, wherein the etch process monitoring comprising directing radiation onto a substrate, wherein an intensity of the radiation is modulated at a frequency of about 10 Hz, as recited by claim 1 and 18.

*Payne* teaches using an automatic engraving system to scan an image of a photograph to provide a masterized gray scale data base of the image. The teaching of *Payne* has nothing related to a semiconductor etching process. The Applicants submit that the Examiner is required to utilized analogous prior art in the obvious analysis, or

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provide evidence that teachings of non-analogous prior art would be (a) known to one skilled in the art, and (b) provide a well reasoned explanation of why it would be obvious to combine the references in a manner that produces a predictable result. With regards to non-analogous art, the references must be in the field of the applicants endeavor, or reasonably pertinent to the particular problem with which the inventor was concerned. See, M.P.E.P. §2141.01(a). The teaching of an automatic engraving system to scan an image of a photograph is not in the field of the Applicants endeavor, nor are they pertinent to a semiconductor etching process. Moreover, it has not been established that methods for improving images would be known to one skilled in the art, nor has a well reasoned explanation been provided to support why it would be obvious to take a teaching for filtering pixels having outlying intensity compared to neighboring pixels and apply that "technique" to a process that for filtering CD measurements. Additionally, the Applicants believe that the pixel filtering process is applied across the entire field of the image, not to analyze dimensional measurements. Thus, the Examiner is impermissibly combining non-analogous references.

*Knoot* teaches a low temperature control of a rapid thermal process. *Knoot* does not teach or suggest analyzing a pre-etch measurement information to determine that a patterning is of a sufficient quality to allow for etching of a substrate, using a pre-etch measurement information in combination with etch process monitoring to monitor an etch process endpoint or a trim process, wherein the etch process monitoring comprising directing radiation onto a substrate, wherein an intensity of the radiation is modulated at a frequency of about 10 Hz, as recited by claim 1 and 18.

In particular, the Examiner asserts that *Knoot* discloses "a modulation frequency of 10 Hz." The Applicants respectfully submit that frequency of less than 20 hertz as taught by *Knoot* is used for a temperature measurement system in a rapid thermal chamber. A frequency used in a temperature measurement system cannot be correlated to a frequency of a radiation used to monitor an etching process or a trim process. Again, the teaching of *Knoot* is not in the field of the Applicants endeavor, nor is there a well articulated reason given why a teaching for frequency of temperature measurement would predictably lead one skilled in the art to employ any particular frequency for dimensional measurement. Accordingly, there is no motivation to combine

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the teaching of *Knoot* into the teaching *Payne* or *Toprac* because they each belong to different fields of invention, and that the record does not support utilization of the teachings of *Knoot* to obtain predictable results.

*Yonezawa* merely teaches an apparatus for post-etching measurement process for measuring dimension of features formed in a substrate. *Shoham* teaches using an endpoint detector used in a CMP chamber. *Egermeier* teaches using a detector to detect contaminant range on a substrate. *Wilby* is cited as evidenced of using a detector to detect a film disposed on a substrate. Neither *Yonezawa*, *Shoham*, *Egermeier*, nor *Wilby*, alone or in combination, teaches or suggests using a pre-etch measurement information in combination with etch process monitoring to monitor an etch process endpoint or a trim process, wherein the etch process monitoring comprising directing radiation onto a substrate, wherein an intensity of the radiation is modulated at a frequency of about 10 Hz, as recited by claim 1 and 18. Furthermore, there is no teaching or suggestion from *Yonezawa*, *Shoham*, *Egermeier*, or *Wilby*, that would suggest one of ordinary skill in the art to modify *Toprac*, *Payne*, or *Knoot* in a manner that would yield using a pre-etch measurement information in combination with etch process monitoring to monitor an etch process endpoint or a trim process, wherein the etch process monitoring comprising directing radiation onto a substrate, wherein an intensity of the radiation is modulated at a frequency of about 10 Hz, as recited by claim 1, 18 and 50. Moreover, most of the references cited by the Examiner are not in the field of Applicants endeavor. As such, a *prima facie* case of obviousness has not been established as the references fail to teach each claimed element.

Thus, the Applicants submit that independent claims 1 and 18, and all claims depending therefrom, are patentable over the combination of *Toprac*, *Payne*, *Knoot*, *Yonezawa* or *Shoham* or *Egermeier*, as evidenced by *Wilby*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

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**35 U.S.C. §103 Claims 1, 3-4, 6-7, 17-18, 20 and 23-24**

Claims 1, 3-4, 6-7, 17-18, 20 and 23-24 stand rejected under 35 U.S.C. §103 as being unpatentable over *Klippert II* (U.S. Patent No. 6,136,712) in view of *Payne*, *Knoot* and *Yonezawa* or *Shoham* or *Egermeier*. The Applicants disagree.

Independent claims 1 and 18 recite elements not taught or suggested by the combination of *Klippert II*, *Payne*, *Knoot*, and *Yonezawa*, *Shoham*, or *Egermeier*. *Klippert II* teaches measuring or estimating an etching rate of an etch process to better control the depth formed or etched in a layer disposed on a substrate during an etching process. However, *Klippert II* does not teach or suggest analyzing a pre-etch measurement information to determine that a patterning is of a sufficient quality to allow for etching of a substrate, using a pre-etch measurement information in combination with etch process monitoring to monitor an etch process endpoint or a trim process, wherein the etch process monitoring comprising directing radiation onto a substrate, wherein an intensity of the radiation is modulated at a frequency of about 10 Hz, as recited by claim 1 and 18.

As discussed above, the teachings of *Payne* and *Knoot* are not in the field of Applicants endeavor, nor does the record support utilization of the teachings of *Payne* and *Knoot* to obtain predictable results. *Yonezawa* merely teaches an apparatus for post-etching measurement process for measuring dimension of features formed in a substrate. *Shoham* teaches using an endpoint detector used in a CMP chamber. *Egermeier* teaches using a detector to detect contaminant range on a substrate. Neither *Yonezawa*, *Shoham*, nor *Egermeier*, alone or in combination, teaches or suggests using a pre-etch measurement information in combination with etch process monitoring to monitor an etch process endpoint or a trim process, wherein the etch process monitoring comprising directing radiation onto a substrate, wherein an intensity of the radiation is modulated at a frequency of about 10 Hz, as recited by claim 1 and 18. Nor does *Yonezawa*, *Shoham*, nor *Egermeier* have teaching or suggestion to one of ordinary skill in the art to modify the teaching of *Klippert II*, *Payne* and *Knoot* in a manner that would yield using a pre-etch measurement information in combination with etch process monitoring to monitor an etch process endpoint or a trim process, wherein the etch process monitoring comprising directing radiation onto a substrate, wherein an

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intensity of the radiation is modulated at a frequency of about 10 Hz, as recited by claim 1 and 18. As such, a *prima facie* case of obviousness has not been established as the references fail to teach each claimed element.

Thus, the Applicants submit that independent claims 1 and 18, and all claims depending therefrom, are patentable over the combination of *Klippert II*, *Payne*, *Knoot*, and *Yonezawa* or *Shoham* or *Egermeier*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

**35 U.S.C. §103 Claims 1, 3-4, 6-9, 11-13, 15, 17-18, 20, 23-26, 28-30 and 32**

Claims 1, 3-4, 6-9, 11-13, 15, 17-18, 20, 23-26, 28-30 and 32 stand rejected under 35 U.S.C. §103 as being unpatentable over *Petrucchi* (WO 01/24254) in view of *Payne*, *Knoot*, and *Yonezawa* or *Shoham* or *Egermeier*. The Applicants disagree.

Independent claims 1 and 18 recite elements not taught or suggested by the combination of *Petrucchi*, *Payne*, *Knoot*, and *Yonezawa*, *Shoham*, or *Egermeier*. *Petrucchi* teaches using an endpoint algorithm to detect an endpoint of an etching process. However, *Petrucchi* does not teach or suggest analyzing a pre-etch measurement information to determine that a patterning is of a sufficient quality to allow for etching of a substrate, using a pre-etch measurement information in combination with etch process monitoring to monitor an etch process endpoint or a trim process, wherein the etch process monitoring comprising directing radiation onto a substrate, wherein an intensity of the radiation is modulated at a frequency of about 10 Hz, as recited by claim 1 and 18.

As discussed above, the teachings of *Payne* and *Knoot* are not in the field of Applicants endeavor, nor does the record support utilization of the teachings of *Payne* and *Knoot* to obtain predictable results. *Yonezawa* merely teaches an apparatus for post-etching measurement process for measuring dimension of features formed in a substrate. *Shoham* teaches using an endpoint detector used in a CMP chamber. *Egermeier* teaches using a detector to detect contaminant range on a substrate. Neither *Yonezawa*, *Shoham*, nor *Egermeier*, alone or in combination, teaches or suggests using a pre-etch measurement information in combination with etch process monitoring to monitor an etch process endpoint or a trim process, wherein the etch process

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monitoring comprising directing radiation onto a substrate, wherein an intensity of the radiation is modulated at a frequency of about 10 Hz, as recited by claim 1 and 18. Nor does *Yonezawa*, *Shoham*, nor *Egermeier* have teaching or suggestion to one of ordinary skill in the art to modify the teaching of *Petrucci*, *Payne* and *Knoot* in a manner that would yield using a pre-etch measurement information in combination with etch process monitoring to monitor an etch process endpoint or a trim process, wherein the etch process monitoring comprising directing radiation onto a substrate, wherein an intensity of the radiation is modulated at a frequency of about 10 Hz, as recited by claim 1 and 18. As such, a *prima facie* case of obviousness has not been established as the references fail to teach each claimed element.

Thus, the Applicants submit that independent claims 1 and 18, and all claims depending therefrom, are patentable over the combination of *Petrucci*, *Payne*, *Knoot*, and *Yonezawa* or *Shoham* or *Egermeier*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

**35 U.S.C. §103 Claims 1, 3-4, 6-9, 11-13, 15, 17-18, 20, 23-26, 28-30 and 32**

Claims 1, 3-4, 6-9, 11-13, 15, 17-18, 20, 23-26, 28-30 and 32 stand rejected under 35 U.S.C. §103 as being unpatentable over *Grimbergen* (U.S. Patent No. 6,390,019) in view of *Payne*, *Knoot*, and *Yonezawa* or *Shoham* or *Egermeier*. The Applicants disagree.

Independent claims 1 and 18 recite elements not taught or suggested by the combination of *Grimbergen*, *Payne*, *Knoot*, and *Yonezawa*, *Shoham*, or *Egermeier*. *Grimbergen* teaches using a process monitoring system mounted on top of a processing chamber to monitor a process. However, *Grimbergen* does not teach or suggest analyzing a pre-etch measurement information to determine that a patterning is of a sufficient quality to allow for etching of a substrate, using a pre-etch measurement information in combination with etch process monitoring to monitor an etch process endpoint or a trim process, wherein the etch process monitoring comprising directing radiation onto a substrate, wherein an intensity of the radiation is modulated at a frequency of about 10 Hz, as recited by claim 1 and 18.

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As discussed above, the teachings of *Payne* and *Knoot* are not in the field of Applicants endeavor, nor does the record support utilization of the teachings of *Payne* and *Knoot* to obtain predictable results. *Yonezawa* merely teaches an apparatus for post-etching measurement process for measuring dimension of features formed in a substrate. *Shoham* teaches using an endpoint detector used in a CMP chamber. *Egermeier* teaches using a detector to detect contaminant range on a substrate. Neither *Yonezawa*, *Shoham*, nor *Egermeier*, alone or in combination, teaches or suggests using a pre-etch measurement information in combination with etch process monitoring to monitor an etch process endpoint or a trim process, wherein the etch process monitoring comprising directing radiation onto a substrate, wherein an intensity of the radiation is modulated at a frequency of about 10 Hz, as recited by claim 1 and 18. Nor does *Yonezawa*, *Shoham*, nor *Egermeier* have teaching or suggestion to one of ordinary skill in the art to modify the teaching of *Grimbergen*, *Payne* and *Knoot* in a manner that would yield using a pre-etch measurement information in combination with etch process monitoring to monitor an etch process endpoint or a trim process, wherein the etch process monitoring comprising directing radiation onto a substrate, wherein an intensity of the radiation is modulated at a frequency of about 10 Hz, as recited by claim 1 and 18. As such, a *prima facie* case of obviousness has not been established as the references fail to teach each claimed element.

Thus, the Applicants submit that independent claims 1 and 18, and all claims depending therefrom, are patentable over the combination of *Grimbergen*, *Payne*, *Knoot*, and *Yonezawa* or *Shoham* or *Egermeier*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

**35 U.S.C. §103 Claims 10, 20 and 27**

Claims 10, 20 and 27 stand rejected under 35 U.S.C. §103 as being unpatentable over *Toprac* in view of *Payne*, *Knoot*, and *Yonezawa* or *Shoham* or *Egermeier* as applied to claims 1, 3-4, 6-7, 17-18, 20 and 23-24 and further in view of *Bin Yu* (U.S. Patent No. 6,390,019). The Applicants disagree.

Independent claims 1 and 18 recite elements not taught or suggested by the combination of *Toprac*, *Payne*, *Knoot*, and *Yonezawa*, *Shoham*, or *Egermeier* further in

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view of *Bin Yu*. The patentability of claims 1 and 18 over *Toprac*, *Payne*, *Knoot*, and *Yonezawa*, *Shoham*, or *Egermeier* has been discussed above. *Bin Yu* is cited by its teaching of using a mask for etching that two sides and top of a feature is trimmed by substantially the same trim length. However, there is no teaching or suggestion from *Bin Yu* that would suggest to one of ordinary skill in the art to modify the teaching of *Toprac*, *Payne*, *Knoot*, and *Yonezawa*, *Shoham*, or *Egermeier* in a manner that would yield analyzing a pre-etch measurement information to determine that a patterning is of a sufficient quality to allow for etching of a substrate, using a pre-etch measurement information in combination with etch process monitoring to monitor an etch process endpoint or a trim process, wherein the etch process monitoring comprising directing radiation onto a substrate, wherein an intensity of the radiation is modulated at a frequency of about 10 Hz, as recited by claim 1 and 18.

Thus, the Applicants submit that independent claims 1 and 18, and all claims depending therefrom, are patentable over the combination of *Grimbergen*, *Payne*, *Knoot*, and *Yonezawa* or *Shoham* or *Egermeier* and further in view of *Bin Yu*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

**35 U.S.C. §103 Claims 16 and 33**

Claims 16 and 33 stand rejected under 35 U.S.C. §103 as being unpatentable over *Grimbergen* in view of *Payne*, *Knoot*, and *Yonezawa* or *Shoham* or *Egermeier* as applied to claims 1, 3-4, 6-7, 17-18, 20 and 23-24 and further in view of *Grimbergen* '924 (U.S. Patent No. 6,406,924). The Applicants disagree.

Independent claims 1 and 18 recite elements not taught or suggested by the combination of *Grimbergen*, *Payne*, *Knoot*, and *Yonezawa*, *Shoham*, or *Egermeier* further in view of *Grimbergen* '924. The patentability of claims 1 and 18 over *Grimbergen*, *Payne*, *Knoot*, and *Yonezawa*, *Shoham*, or *Egermeier* has been discussed above. *Grimbergen* '924 is cited by its teaching of detecting an interferometric signal shift in an endpoint detection system to monitor an etched structure formed in the substrate during an etching process. However, there is no teaching or suggestion from *Grimbergen* '924 that would suggest to one of ordinary skill in the art to modify the

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teaching of *Grimbergen*, *Payne*, *Knoot*, and *Yonezawa*, *Shoham*, or *Egermeier* in a manner that would yield analyzing a pre-etch measurement information to determine that a patterning is of a sufficient quality to allow for etching of a substrate, using a pre-etch measurement information in combination with etch process monitoring to monitor an etch process endpoint or a trim process, wherein the etch process monitoring comprising directing radiation onto a substrate, wherein an intensity of the radiation is modulated at a frequency of about 10 Hz, as recited by claim 1 and 18.

Thus, the Applicants submit that independent claims 1 and 18, and all claims depending therefrom, are patentable over the combination of *Grimbergen*, *Payne*, *Knoot*, and *Yonezawa* or *Shoham* or *Egermeier* and further in view of *Grimbergen* '924. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

**35 U.S.C. §103 Claim 21**

Claim 21 stands rejected under 35 U.S.C. §103 as being unpatentable over *Toprac* in view of *Payne*, *Knoot*, and *Yonezawa* or *Shoham* or *Egermeier* as applied to claims 1, 3-4, 6-7, 17-18, 20 and 23-24 and further in view of *Cha* (U.S. Patent No. 6,319,767). The Applicants disagree.

Independent claim 18 recites elements not taught or suggested by the combination of *Toprac*, *Payne*, *Knoot*, and *Yonezawa*, *Shoham*, or *Egermeier* further in view of *Cha*. The patentability of claim 18 over *Toprac*, *Payne*, *Knoot*, and *Yonezawa*, *Shoham*, or *Egermeier* has been discussed above. *Cha* is cited by its teaching of using a photoresist mask during an etching process and the dimension of the photoresist mask may be eliminated during etching. However, there is no teaching or suggestion from *Cha* that would suggest to one of ordinary skill in the art to modify the teaching of *Toprac*, *Payne*, *Knoot*, and *Yonezawa*, *Shoham*, or *Egermeier* in a manner that would yield analyzing a pre-etch measurement information to determine that a patterning is of a sufficient quality to allow for etching of a substrate, using a pre-etch measurement information in combination with etch process monitoring to monitor a trim process, wherein the etch process monitoring comprising directing radiation onto a substrate, wherein an intensity of the radiation is modulated at a frequency of about 10 Hz, as

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recited by claim 18. As such, a *prima facie* case of obviousness has not been established as the references fail to teach each claimed element.

Thus, the Applicants submit that claim 21, that depends from claim 18, is patentable over the combination of *Toprac*, *Payne*, *Knoot*, and *Yonezawa* or *Shoham* or *Egermeier* and further in view of *Cha*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claim allowed.

**35 U.S.C. §103 Claims 50-59**

Claims 50-59 stand rejected under 35 U.S.C. §103 as being unpatentable over *Grimbergen* in view of *Payne*, *Knoot*, and further in view of *Cha* and *Bin Yu*. The Applicants disagree.

Independent claim 50 recites elements not taught or suggested by the combination of *Grimbergen*, *Payne*, *Knoot*, and further in view of *Cha* and *Bin Yu*. As discussed above, *Grimbergen* teaches using a process monitoring system mounted on top of a processing chamber to monitor a process. The teachings of *Payne* and *Knoot* are not in the field of Applicants endeavor. *Cha* is cited by its teaching of using a photoresist mask during an etching process and the dimension of the photoresist mask may be eliminated during etching. *Bin Yu* is cited by its teaching of using a mask for etching that two sides and top of a feature is trimmed by substantially the same trim length. Neither *Grimbergen*, *Payne*, *Knoot*, *Cha* nor *Bin Yu*, alone or in combination, teaches or suggests trimming a mask using an etch process, wherein a pre-etch measurement information of width of mask structures in combination with etch process monitoring are used to monitor trim process, wherein the etch process monitoring comprises directing radiation having an intensity modulated at a frequency of about 10 Hz onto the substrate, collecting a portion of the radiation reflected from the substrate, measuring an intensity of wavelengths in a spectrum of the radiation reflected from the substrate, and using a correlation between a spectral position of a minimum in the spectrum and a width of the structures formed on the substrate, as recited by claim 50. Nor does *Grimbergen*, *Payne*, *Knoot*, *Cha* nor *Bin Yu*, alone or in combination, teaches or provides a suggestion to modify their teachings in a manner that would yield trimming a mask using an etch process, wherein a pre-etch measurement information in

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combination with etch process monitoring are used to monitor trim process, wherein the etch process monitoring comprises directing radiation having an intensity modulated at a frequency of about 10 Hz onto the substrate, collecting a portion of the radiation reflected from the substrate, measuring an intensity of wavelengths in a spectrum of the radiation reflected from the substrate, and using a correlation between a spectral position of a minimum in the spectrum and a width of the structures formed on the substrate, as recited by claim 50. As such, a *prima facie* case of obviousness has not been established as the references fail to teach each claimed element.

Thus, the Applicants submit that independent claim 50 and claims 51-59 depending therefrom, are patentable over the combination of *Grimbergen* in view of *Payne*, *Knoot*, and further in view of *Cha* and *Bin Yu*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

**35 U.S.C. §103 Claims 50-59**

Claims 50-59 stand rejected under 35 U.S.C. §103 as being unpatentable over *Toprac* or *Klippert II* or *Petrucci* in view of *Payne*, *Knoot*, and further in view of *Cha* and *Bin Yu*. The Applicants disagree.

Independent claim 50 recites elements not taught or suggested by the combination of *Toprac* or *Klippert II* or *Petrucci* in view of *Payne*, *Knoot*, and further in view of *Cha* and *Bin Yu*. As discussed above, *Toprac* teaches measuring a thickness of a process layer disposed on a substrate before an etching process. *Klippert II* teaches measuring or estimating an etching rate of an etch process to better control the depth formed or etched in a layer disposed on a substrate during an etching process. *Petrucci* teaches using an endpoint algorithm to detect an endpoint of an etching process. The teachings of *Payne* and *Knoot* are not in the field of Applicants endeavor. *Cha* is cited by its teaching of using a photoresist mask during an etching process and the dimension of the photoresist mask may be eliminated during etching. *Bin Yu* is cited by its teaching of using a mask for etching that two sides and top of a feature is trimmed by substantially the same trim length.

Neither *Toprac*, *Klippert II*, *Petrucci*, *Payne*, *Knoot*, *Cha*, *Bin Yu*, alone or in combination, teaches or suggests trimming a mask using an etch process, wherein a

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pre-etch measurement information of width of mask structures in combination with etch process monitoring are used to monitor trim process, wherein the etch process monitoring comprises directing radiation having an intensity modulated at a frequency of about 10 Hz onto the substrate, collecting a portion of the radiation reflected from the substrate, measuring an intensity of wavelengths in a spectrum of the radiation reflected from the substrate, and using a correlation between a spectral position of a minimum in the spectrum and a width of the structures formed on the substrate, as recited by claim 50. Nor does *Toprac*, *Klippert II*, *Petrucci*, *Payne*, *Knoot*, *Cha*, nor *Bin Yu*, alone or in combination, teaches or provides a suggestion to modify their teachings in a manner that would yield trimming a mask using an etch process, wherein a pre-etch measurement information in combination with etch process monitoring are used to monitor trim process, wherein the etch process monitoring comprises directing radiation having an intensity modulated at a frequency of about 10 Hz onto the substrate, collecting a portion of the radiation reflected from the substrate, measuring an intensity of wavelengths in a spectrum of the radiation reflected from the substrate, and using a correlation between a spectral position of a minimum in the spectrum and a width of the structures formed on the substrate, as recited by claim 50. As such, a *prima facie* case of obviousness has not been established as the references fail to teach each claimed element.

Thus, the Applicants submit that independent claim 50 and claims 51-59 depending therefrom, are patentable over the combination of *Toprac* or *Klippert II* or *Petrucci* in view of *Payne*, *Knoot*, and further in view of *Cha* and *Bin Yu*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

**CONCLUSION**

Thus, at least for the reasons set forth above, the Applicants submit that all claims now pending are in condition for allowance. Accordingly, both reconsideration of this application and swift passage to issue are earnestly solicited.

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If the Examiner believes that any unresolved issues still exist, it is requested that the Examiner telephone Keith Taboada at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

Oct 31, 2007  
Date

  
Keith P. TABOADA  
Attorney Reg. No. 45,150  
(732) 530-9404

Patterson & Sheridan, LLP  
595 Shrewsbury Avenue  
Suite 100  
Shrewsbury, NJ 07702

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